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Robin G. Jackson

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Verbal Behavior, Communication Development and Autism:
A Single-Child Study

Robin G. Jackson

EDCI 590 INDIVIDUAL RESEARCH

April 30, 2011

Signature of Project Advisor

Jo Tyler
Professor of Linguistics and Education

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Introduction

According to research, children with autism have several deficits that exclude them from the school environment. These deficits are reasons for behavior problems and poor academics. Functional interventions have been successful in improving these problems. The objective of this research is to study the communication behavior of a single student with autism in order to determine whether a specific functional intervention will increase this student's ability to communicate in a school. This single-child study includes informal assessments, formal observations and an intervention. The intention of this research is to provide teachers with a better understanding of a strategy which could be utilized by other staff member for students with similar behavior.

My research topic involves a study of a particular student with autism in a self-contained classroom. To protect his identity I will call him "Bill". He was a part of my caseload five years ago. Due to an increase in students in the autism program and the organization of students by ability level, Bill was recently moved back to my caseload. Bill is a 12-year-old 6th grader with significant cognitive and language delays. He would be considered to be a student with classic autism. He is not able to hold a conversation. In most instances, he only communicates one word utterances to those he is comfortable with. If a caregiver or teacher is not familiar with this student there may be difficulty understanding what his need or want is because he does not use more than one word to communicate. He may say "drink" without specifying which type and push away what is given to him. The teacher or caregiver could conclude that he changed his mind. He makes various unintelligible verbal noises known as repetitive or idiosyncratic language; this is a repeating of non-functional language (Mancil, 2009, p.105). He also will make

these noises at various times throughout the day, especially when he is told to communicate with a peer or is asked questions by his teachers. There is some difficulty with the noises in the general education classroom, because it can be distracting to the rest of the class. The noises are especially prevalent during times of reading or verbal communication. The noises decrease the listener's ability to understand the student because they often occur with the one word utterances.

In order to include Bill with typically developing peers, Bill is placed in one inclusion class according to his academic ability and attends all the special classes with his age group, such as art and physical education. His special education class is 4th grade math in a classroom with ten other students. Bill's mainstreamed class is 3rd grade social studies in the general education classroom of 21 students. He is accompanied by a one-to-one paraprofessional, whose primary responsibility is to ensure that he is following along with the class and to adapt the work to his ability level. The paraprofessional also redirects him when the verbal noises become too loud. According to work product, Bill has a good word recognition repertoire and memorization ability but little or no understanding of words in academic areas that require verbal or written communication. This is observed during student spelling tests and word comprehension activities. The spelling tests are always performed at 90 to 100% accuracy but the selection of spelling words in sentence fill-ins are performed from 0% to 10% accuracy. He does, however, ask for items or foods by using words that are in his immediate environment such as: *drink, pizza, crackers, and computer*. Bill's word repertoire also includes verbs and adjectives. Unfortunately, he does not use these words when making requests. Through observation and intervention, I hope to identify strategies that would increase Bill's

participation when he is in general education classes. I also hope to increase one word communication to two or more words that are currently a part of the student's repertoire and identify the purpose of the noises in order to decrease or eliminate them. My results would not only benefit the student, but other teachers who have students with similar disabilities; especially the related service providers who work with students on language skills.

A successful strategy to reduce negative behavior is Functional Communication Training (FCT). FCT is a system used to help students to communicate verbally instead of engaging in negative behavior. This training involves differential reinforcement of alternate behaviors in order to reduce problem behavior (Cooper, Heron & Heward, 2007, p. 470). Once the behavior targeted is performed appropriately, the student receives reinforcement. I would like to use FCT to teach phrase communication instead of verbal labeling and gesturing.

I have 15 years of experience with students with autism and have developed a passion to help their lives to be better using evidence based strategies. I currently teach self-contained K-6 higher ability autism and K-3 developmentally delayed students. My previous class for five years was autism fourth through sixth grade. Before I moved to Virginia, I worked in Maryland as a home therapist for three children with autism. My final position was with a student in high school with autism. As a home therapist, I had monthly trainings and was videotaped in order to receive continuous feedback. I also received monthly trainings with Board Certified Behavioral Consultants in Virginia. I have received training in verbal behavior, discrete trials, identification of children with autism, incidental teaching, environmental teaching, picture exchange system, sign

language, behavior management and errorless teaching. I also completed my Graduate Certificate in Autism with BCaBA option.

Literature Review

In the literature about autism, there are several areas of communication discussed. The discussions are some areas of limitation displayed by persons with autism. The literature will also help the reader to understand limitations in social interaction and pragmatics. Along with understanding communication deficits, interventions are considered. One main intervention discussed is the use of Functional Communication Training (FCT).

Communication Behavior

According to *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition*, in order to receive a diagnosis of autism disorder, the child must have impairment in social interaction and communication with restricted repetitive and stereotypic patterns of behavior (American Psychiatric Association, 2000, p.75). In order to effectively communicate, it is important to be able to have an expressive language repertoire. Children with autism have difficulties in expressive language. Expressive language involves sending messages in order to communicate (Hallahan, Kauffman, & Pullen, 2009, p. 304).

One important area of communication is repetitive behavior. Repetitive behaviors are observed in children with autism as preoccupations with certain interests or objects; it also encompasses compulsiveness toward nonfunctional routines (Honey, McConachie, Randle, Shearer, & Le Couteur, 2008, pp. 1440-1441). This behavior in a young child

with autism may be seen in excessive movements and preoccupations with objects or toys. The repetitive behavior with these objects or toys may be seen with interactions with the toy or object in an unusual way; for example, twirling an object or toy that may have been intended for pushing or looking at it from different positions. These preoccupations can go on for hours. In those that are typically developed these behaviors are not excessive because they are not seen as pathological (Honey, McConachie, Randle, Shearer, & Le Couteur, 2008 pp. 1440). A major consequence of excessive repetitive behavior is that it directly interferes with everyday routine. An example would be a child who is preoccupied with his hand and is not paying attention to what is directly in front of him. Honey and colleagues (2008, p. 1440) article related to repetitive behavior, defined as “restricted, repetitive and stereotyped patterns of behavior, interests, and activities”. Honey and colleagues (2008, p. 1440) determined that this behavior is prevalent in children with autism spectrum disorder and other disabilities. Three groups of children between the ages of 24 to 48 months were observed. The researchers noted how repetitive behaviors affected the children over thirteen months. In order to study repetitive behaviors, verbal or physical behaviors should be considered. This study did not include the verbal repetitive behavior. Rates of repetitive behavior were measured and compared. Findings resulted in association between poor language and adaptive skills and high rates of repetitive behaviors for all groupings. Another relevant finding for a child with autism was an increase over time of repetitive behaviors (Honey, McConachie, Randle, Shearer, & Le Couteur, 2008, pp. 1446, 1450). The same study mentioned that further research is needed to study those who have verbal repetitive

behaviors. The study also mentioned that further research should be performed for those who have verbal repetitive behaviors.

A perseverative utterance is a word used to describe a child with autism who repetitively verbalizes. Like repetitive behaviors, it occurs when someone excessively repeats but it is in the form of vocalization (Siegel, 2003, pp. 57-59). Perseverative utterances can be in the form of a phrase, sentence or question. Perseveration can become so frequent and intense that it could possibly take over a person with autism's life. It also can inhibit new stimulations if it is not eliminated or decreased (Siegel, 2003, p. 59).

Echolalia is another communication disorder, involving exact repetition of what is heard or said (Prelock & Contompasis, 2006, p. 171). In normal development we echo for reasons of clarity or when we are learning new forms of language. Echolalia is a behavior seen in children with autism, but not necessarily for the same reason. It is usually extreme and constant verbal behavior. There are two types of echolalia. One is immediate echolalia. An example would be to tell a child to "say hello" and the child responds with "say hello". Another is delayed echolalia, which is a repetition of words heard weeks earlier. Prelock and Contompasis (2006, p. 171) also spoke of a variation known as mitigated echolalia. This involves a modification of words used or use of words during situations that are different from the original situation. For example after a teacher says "John, sit down" the child with autism may echo it for another student who may be already sitting or repeat it during stressful situations. Mitigated echolalia can also be either immediate or delayed. There are various theories as to why children with autism may display echoic behavior. According to Halle and Meadon (2007, p. 49) when

the ability to communicate is impaired, the child will use his repair language as his first method of communication; this is when verbal language or alternate forms of communicating is not getting the child his wants and needs. He then uses other forms of communicating such as self-injury or echolalia. It has also been mentioned by Prelock and Contompasis (2006, p. 172) that echolalia may be a method of requesting, labeling, maintaining contact or turn-taking with a communication partner. In each situation, echolalia is confusing to the listener and decreases the communication, especially if it is someone who is not familiar with the speaker who displays the echoic behavior.

Excessive questioning is a more sophisticated type of expressive verbal echoing (Prelock & Contompasis, 2006, p. 172). This behavior involves the child with autism asking a question with the intention of receiving information from the listener (Prelock & Contompasis, 2006, p. 173). Once that question is asked the child will continue to ask the question, although the answer was given earlier. This also may be immediate or delayed. This process may be performed with different people using the same question.

Some children with autism exhibit faulty prosody. Prosody is the volume, intonation, pitch and changes in voice (Farrell, 2006 p. 3). It is also the expressions that are exhibited in a person's voice which show feelings of surprise, or any other emotion. A child that has a disorder in prosody will have a robotic voice. An example can be seen in reading a caption that encompasses statements with exclamation points as in "Oh no!" For a child with autism, this statement would be read with no expression. This is a problem because statements that are from a child with this disorder could confuse the listener. For example, "I'm going to the store?" This statement if spoken by a child with autism might not be interpreted as a question if there is no intonation in the voice. The

whole meaning of a statement or question could be confused. Prosody assists in showing the intentions of a person. Trying to alert someone of danger may not be taken seriously if there is no prosody in the child's speech. Without it there is social awkwardness.

Grammatical prosody encompasses where the stress in a word is placed as in the verb "pre-SENT" and the noun "PRES-ent" (Shriberg, Paul & McSweeny, 2001, p. 1098). A child with this difficulty would not place the stress in the correct place, causing confusion in what he may be attempting to convey. There is also pragmatic stress which is used for bringing attention to information that the speaker intends to stress within a statement.

Social Interaction and Pragmatics

Social interaction is a very important part of communication. It is a common issue for children with autism. Social interaction is for purposes of sustaining a social routine between two or more people. Children with social interaction deficits have problems developing peer relationships along with an inability in showing emotional reciprocity (Farrell, 2006 p. 3). They also lack the ability to share in enjoyment or achievements of others. One aspect of social interaction is joint attention, which is when individuals draw the attention of another for purposes of sharing an event (Prelock & Contompasis, 2006 p. 170). Problems with joint attention can be seen as early as six to 12 months in children diagnosed with autism (Charman, 2003 p. 315). Deficits in joint attention hinder social relationships with others (Prelock & Contompasis, 2006 p. 170). Behaviors such as eye contact and attention to name are important aspects of communication that require joint attention. Joint attention is a skill needed in school and beyond. It is a method of sharing experiences and information with others. Besides

joint attention, children with autism are not able to perform verbal routines. This is the process of conversation involving a speaker and listener. There may be difficulties with turn-taking. Instead of allowing the other person to talk, a child with autism may do all the speaking, not picking up social cues or realizing that the other person may want to respond (Prelock & Contompasis, 2006, pp. 407-408).

Prelock and Contompasis (2006, p. 34) wrote that the child should be able to shift attention from one speaker to another depending on who is bringing forth the information. For a child with autism there may be an inability or slowness to disengage or shift attention.

It is important to explore the social behaviors of children with autism due to isolation. Children with autism tend to isolate themselves. According to Prelock and Contompasis (2006, p. 255), this behavior is called isolation behavior. Isolation behavior makes the autistic child appear to be oblivious of others around them. There may be a momentary glance or interest but not with the intent to interact. Isolation behavior is the opposite of social interaction.

Gesturing is an important communication vehicle that many children with autism may not process. Typically, children are able to request non-verbally using gesturing. This behavior is seen through pointing, showing, nodding of the head, and waving (National Research Council, 2001, p. 48). This is known as behavioral regulation, which is a method of controlling the behavior of others (Halle & Meadon, 2007, p.49). Children with autism have a limited ability to gesture. They resort to pulling, leading, or movement of another's hand. Facial gestures are a great indication of an emotional state of a person. They include happiness, anger, uncertainty, etc. Siegel (2003, pp. 93-96)

mentioned that these expressions may not be used for communication purposes by children with autism. If there is no indication of the child's emotional state, the child may be misunderstood by others. The child may feel sick, but may use methods such as head banging to try to communicate that something wrong. In many cases, the child may suffer a total behavior breakdown before there is any realization of any problem condition. Children with autism have facial expressions but not for communicative purposes. In addition to facial expressions are physical gestures which include nodding, pointing and waving. Being able to nod yes or no is a really important skill that is not utilized by many children with autism.

Communication Interventions for Requesting

There are several interventions for autism including milieu therapy, incidental teaching, self-modeling, and functional communication training which can be used to improve requesting behaviors and are the focus of the following sections.

Milieu therapy is a strategy that is effective in teaching communication using the natural environment (Mancil, 2009, p. 106). Mancil (2009) examined literature that pertained to the effective use of milieu therapy with participants with autism. Out of 28 articles, eight articles were selected. There were 20 participants in the article with autism spectrum disorder (ASD). They were between the ages of two and 15 all having limited communication ability. Mancil (2009, pp. 106-107) explained that milieu therapy is when the child is taught to communicate in the environment with the use of modeling by the teacher. One of the procedures is how to mand or ask for objects. First the instructor demonstrates or models the appropriate behavior. Then once the student repeats the

correct verbal mand, the child is rewarded with that object. Eventually the student is expected to perform the correct verbal mand without teacher modeling. According to the research, milieu strategies are very effective in teaching or increasing communication skills. It did not, however, show the effectiveness of milieu therapy with students with challenging behavior. Milieu therapy also has a procedure called time-delay. The trainer, who may be the teacher or paraprofessional in the classroom, will allow wait time in the natural environment for the student to request a certain item before allowing access to that item or food. If the request is not made in a certain period of time, the trainer will model the requesting behavior (Mancil, 2009, p 107). Prelock and Contompasis (2006, p. 413) explained that there are other variations of milieu training such as using an item to attract the child's interest then prompting the child to use words to receive assistance with interacting with the item. This is known as child-directed modeling. Prelock and Contompasis (2006, p. 413) used an example of a tape recorder that the child may want to listen to but is not able to push the button. The trainer will prompt the child to request assistance. If the child approaches an item the teacher may ask the student to tell them what the item is and reward for a correct response; these are mand-model procedures.

Incidental teaching involves an arrangement of the environment to facilitate conversation and encouragement to request. Its strengths are using naturally motivating objects and items in the child's environment, but it does not explain how to decrease interfering behaviors to communicating (Prelock & Contompasis, 2006, p. 414).

Another intervention for communication is utilizing a structured teaching environment; this is called the Treatment and Education of Autistic and Communication Handicapped Children (TEACCH) (Panerai, Ferrante & Zingale, 2002). The

communication intervention is usage of the picture schedule. This system replaces the need for verbal communication visually in order to access their environment. This is where the environment is set up in a way that everything is planned and predictable. It utilizes schedules and predictable tasks that will increase independence. It emphasizes physical structure with visual schedules and teaching methods. The physical structure stresses the use of boundaries in the classroom by using various materials and furniture for the purpose of sectioning off the room. The visual schedules also have a purpose. It is a method of allowing the students with autism to know exactly how their day will be. There are no surprises, thereby decreasing stress and increasing appropriate behavior. Schedules can incorporate various social interactions. Work systems are how the work is presented. It may include a visual schedule of how to perform the task. In a study by Panerai, Ferrante and Zingale (2002, pp. 318-319), a comparison was made between the TEACCH program and a non-specific program. Areas of improvement using the structured teaching method were imitation, fine motor, gross motor, hand-eye coordination, perception and cognitive performance. The article suggests that the severity of impairment in these areas and subjects may be why there was not an increase in these areas. There is no definitive data that suggest, if there is an interfering repetitive behavior, either physical or verbal, that TEACCH would eliminate that behavior.

According to an article by Wert and Neisworth (2003, p. 30), video self-modeling can also be used to improve communication in the area of requesting. This study involved preschoolers. Video self modeling involves allowing the children to see video of them performing a skill properly. The skill in the article is spontaneous requesting. The video was edited to remove any adult prompting so that the video viewed the student

only performing the behavior. Students watched the video of themselves several times. The results concluded that this was an effective intervention. There was also a video modeling study completed by Bellini and Akullian (2007, p. 283). The study involved adolescents with various disabilities. The authors noted that if the child has difficulties with attending, this would not be successful for them. Also they may not like seeing themselves.

Functional Communication Training for Reducing Negative Behavior

Functional Communication Training (FCT) is a well thought out method of reducing negative behaviors and replacing them with verbal communication. Mancil and Boman (2010, p. 245) wrote that there is consistent data which shows the effectiveness of FCT in reducing negative behavior and replacing it with communication. It is suggested in most literature that a behavior specialist or a school psychologist enact this process.

FCT is a three-step process. In order to enact the procedure, Mancil and Boman (2010, p. 239) suggest that preparations for how the process will be conducted and details about the subject be considered first. This will enable to the researcher insurances that this training is appropriate for the behavior exhibited by the subject. The first step in FCT is to perform a functional behavior assessment to determine the effects and extent of the interfering behavior. This assessment is divided into two processes, direct measures and indirect measures. In order to conduct a direct measure of the interfering or problem behavior, consequences are manipulated in order to make an assessment of what is causing or interfering with the targeted behavior. Target behavior refers to the behavior

the researcher is attempting to achieve in a child who is displaying the negative behaviors that interfere with communication, the targeted behavior. During the direct assessment, the student is observed to determine which conditions relate to the negative behavior. The conditions are escape, attention, and tangible items mentioned by Mancil and Boman, (2010, p. 239). The escape condition is when the student is allowed to escape demands to see if there is an increase or decrease of the interfering behavior. In the attention condition the student receives attention for behaviors that are being observed. The tangible test examines if objects increase or decrease the interfering behavior. One other condition not listed in this article is the alone condition (Cooper et al., 2007, p. 504). The alone condition, sometimes called sensory because it is assumed that the behavior is a result of something inside the individual, will test to see if it is something that will happen if no condition is presented.

The indirect measure is an assessment instrument that provides information from adults who interact regularly and are familiar with the student. This measure may come in three forms: checklists, questionnaires, and interviews. Checklists are basic tools given to the teacher or an adult familiar with the student. The checklists should assist in determining the function of the problem behavior. A type of checklist is the Motivation Assessment Scale (MAS) created by Delaney and Durand (1986). This is a widely used checklist that includes the four behavior conditions: escape, sensory, attention, and tangible. In contrast to the checklists, the questionnaires usually contain open ended questions and a greater amount of information. Interviews provide even more depth with questions that are vague and set the stage for deeper probing questions (Mancil & Boman, 2010, p. 239). Mancil and Boman (2010, p. 239) suggest that the interviewer be

well trained in how to interview. Both direct and indirect measures should give the researcher a hypothesis of why the interfering or problem behavior is occurring and further information for the next of the FCT process.

The second step is to identify the replacement response (Mancil & Boman, 2010, p. 240). A replacement response is the targeted behavior that will be used in the FCT to replace the negative behavior, depending on the conditions identified in step one of the process. For example, if the student's desire is to escape a task, the teacher or trainer may present a break card as an alternative to some physical act of aggression to escape a task. Mancil and Boman (2010, p. 240) present four criteria to determining a replacement response. First must be knowledge of the level of response a student can provide. For example, if the student is non-verbal, an alternative response would be the use of an assistive technology device, pictures, or gestures. Secondly, the ease of teaching the new response should be considered. For example, if the child does not have the verbal ability to form complex questions, the targeted behavior should not involve asking complex questions. Focus should be on language that is in the child's repertoire. Thirdly, Mancil and Boman (2010, p. 240-241) suggest that the replacement response should be a response that is understood by others. Therefore, if the child has gross or fine motor difficulties, sign language should not be an alternative response because others may not recognize the child's movement due to that limitation. Lastly, the replacement behavior should enable the student to function well in the community. If others in the community cannot understand the child's new response then the response is not functional.

Step three in the FCT process would be the treatment plan development. Mancil and Boman (2010, p. 241) suggest using discrete trial procedures to teach the new behavior. Discrete trials are a direct and repeated method of teaching a new skill to a child with autism. Most times it is taught in a separate environment away from distractions using a one to one scenario. It can be used with two students but it depends on student ability or cognitive level. The correct behavior is prompted then reinforced and the problem or interfering behavior is put on extinction or ignored. Prompting is when the teacher quickly gives the student the correct response and reward immediately.

The article by Bopp, Brown and Mirenda (2004, p. 6) is an explanation of two interventions for problem behavior. One is FCT which is used in this article as a way to teach a communication alternative to problem behavior. In this article, behavior is viewed as a method of communication. The article gave an overview of how to perform a functional behavior assessment in order to determine what the negative behavior is intended to communicate. Knowing the function of the behavior is the first step in the intervention designing process. Another step mentioned in the article is to replace the functional motivation of the problem behavior with appropriate communication. An example would be replacing hitting in order to gain something with a "Help Me" card. This step to performing the FCT closely resembles the process indicated by Mancil and Bowman (2010) who wrote that the communication response should be appropriate for the behavior. Bopp and colleagues (2004, p. 9-10) wrote that there should be a response match, response mastery, response success, response efficiency, response acceptability, and response recognizability. There are a few more steps in the intervention planning steps than in Mancil and Boman's (2010) intervention plans. The first stage is the

response match; this is when the problem behavior matches the response. Once this is achieved there should be response mastery, which is when the response successfully produces the expected outcome. A component of the response mastery is the response success which determines if there is a replacement of the problem behavior with the new communication response. The new response must give the same result as the function of the behavior that is being replaced. Response efficiency is the physical effort needed to perform the new behavior. Researchers suggest that the new behavior would be easily received if it does not require too much effort. Success also will appear if the desired outcome is immediate. There is an expectation that the response be accepted by the community. An example used by Bopp and colleagues (2004, p. 10) was the word “buzz off” when a break is need which is insulting to those around the student. A more appropriate phrase would be “I need a break”. Response recognizability means that others should recognize the response.

Modification of FTC Procedures to Increase Communication

Functional behavior analysis (FBA) and functional communication training (FCT) can be used to replace inappropriate behavior with a more typical form of communication depending on the ability level of the student (Ross, 2002, p. 344). The study by Ross (2002, p. 349) first involved a functional analysis to determine the function of the faulty conversation. The function was either escape from demands, attention from any number of people, alone or inward need which is something the child is craving inwardly, or a desire for tangible items. Once the function of the faulty communication is identified, the FCT begins. Ross (2002) examined how to replace the faulty communication with

appropriate responses during conversation exchanges. The study involved three students with high functioning autism. The participants were able to answer questions in multi-word sentences. The behavior to be decreased was high rates of delayed echolalia, perseverative utterances, and other deviant verbal responses. Some perseverative responses included conversing with others on mutual topics and initiating conversation. Ross (2002) successfully used scripts along with reinforcement and response cost procedures. Response cost involves losing something if the behavior that is being removed occurs. The FCT was based on putting the function of the faulty conversation on extinction and reinforcing the correct conversational statements.

Ross's (2002) study was different from the typical FCT because it was based on high functioning subjects' conversation skills. During the direct assessment, each condition was set up using a one to one scenario with each participant. First there was the escape scenario. The experimenter would have a conversation with the participant, and if the inappropriate response occurred, the experimenter would remove everything and stop communicating with the participant. The purpose was to see if the responses were maintained by escape. In the attention scenario, the experimenter would ask a question and depending on the response, the experimenter would attend to the participant. If the unwanted verbal behavior continued or increased then the targeted behavior was maintained by attention. During the tangible condition, the participant was allowed to obtain reinforcement if the target behavior occurred. The alone condition involved placing the individual in a room with low demand activities to see if the behavior was maintained through sensory issues. There were also indirect measures taken from

teachers and other adults who directly interact with the students. Eventually the function of the behavior for all individuals was determined to be maintained by attention.

During the FCT procedure used by Ross (2002, p. 346), students were taught to read statements off of a card and reinforced for using the appropriate statements. Other negative behaviors were subject to response cost procedures. This study did not involve behaviors that were physical or harmful to the participant or others. The purpose of FCT in Ross's study was to teach a more appropriate method of communication. The study had an excellent procedure but it was enacted by researchers and not in a typical classroom environment. It involved students who had below age level verbal abilities, but they were understood by peers and adults. Ross (2002, p. 344) mentioned that it would be interesting to see a single-child study that used functional analysis and FCT on faulty utterances. There is only one single-child study with students with autism that used functional analysis and FCT on faulty utterances, according to Ross (2002, p. 344).

This brief review of the literature suggests that functional interventions have great promise for helping autistic students succeed in inclusion settings. A plan on how to complete a functional behavior analysis in a self-contained classroom environment using classroom teachers would not only assist the student but also the teacher.

Methodology

This research project consists of a single-child study of a student with autism. The purpose of this research project is to answer the following research questions: (1) For a child with autism who makes one-word requests when functional communication training (FCT) is utilized, will this student's one-word communication ability increase to verbal phrases? and 2) Will FCT decrease repetitive behaviors that often accompany the

one word labels? FCT has been used to decrease negative behavior in children with autism; however, it has not been applied in a classroom setting or used as a way to increase sentence length.

In this experiment, the dependent variable is the observable behavior displayed by Bill. In this case, the dependent variable is a one-word request accompanied with a noise instead of an appropriate phrase. The independent variable was enacted through a modification of Functional Communication Training, which is a method of training the student to communicate instead of engaging in challenging behavior (Mancil, 2006, p. 214).

Before the intervention or the independent variable can be implemented and measured, a functional behavior assessment (FBA) must be administered. This is achieved by first conducting interviews from those who directly work with the student (Bopp, et al., 2004, p. 6). The FBA determines reasons for the interfering inappropriate behavior. It determines if it is to escape conversation, or if it occurs in an alone scenario or when demands are placed, which may cause anxiety, or because he would like something tangible. Whatever the function, the analysis reveals the purpose of the behavior and determines a match between the function and the replacement behavior. In this case, the replacement behavior is making requests using multiple-word phrases. The effect of the intervention can be measured once the student has been trained. I used a multiple baseline across behaviors to graph the results.

All appropriate measures of protecting the student were followed. Approval was received by the University of Mary Washington IRB and consent forms were signed by the parents (see Appendix). Approval was also given by school administration

Subject Profile

The subject of this study is a 12-year-old student with autism. In this paper I refer to him using the pseudonym “Bill”. Bill is a tall thin student who has a lot of musical talents. He has a calm personality and is well liked by everyone. When Bill walks into the school, he is greeted by teachers and other students. He does not show interest in others unless it involves physical play, such as tickling. His greetings vary depending on his familiarity with that person. Bill’s autism manifests through his non interaction to others and his perseverative utterances. His repetitive behavior is displayed by his constant hand in front of his face. A frequent habit of Bill’s is to go on YouTube, a computer video website, to replay the Disney movie credits. His favorite movie seems to be *Beauty and the Beast* because that is the movie credit he frequently watches. He does well with visual material such as written lists or pictures when assistance is needed in performing daily routines.

Bill is in the sixth grade in a Virginia public school. His classroom placement is in a self-contained autism classroom. His math placement is in the fourth grade learning disability pull-out class. He attends third grade social studies in the regular general education classroom. He also attends music, art, physical education, and library with the third grade class. He has a paraprofessional with him whenever he is outside of the self-contained autism classroom.

In the special education self-contained class, several items are used as reinforcements. Bill enjoys keyboarding and computers. At various times, his paraprofessional will give Bill time on the keyboard at the end of class for performing well. He also will often ask for a drink or pizza. While he is in the inclusion classroom,

he will work for a green sensory cube or cookies. These reinforcements were used during this study for increasing Bill's verbal phrases. For this study, if Bill used the appropriate communicative request, he received the item he asked for.

Data Collection Procedures

The first step in the data collection process of FCT was to conduct a Functional Behavior Assessment (FBA). An indirect assessment of Bill's communicative behavior was a part of the FBA. Two paraprofessionals completed a Motivation Assessment Scale (MAS) questionnaire (see Appendix). As the teacher, I also completed a MAS questionnaire. The MAS is a tool developed by Delaney and Durand (1986), which is used to identify the situations in which the child engaged in negative behavior. For the purpose of this study, the behaviors focused on were reduction of verbal noises, hand in front of face, and scripting. The three assessments from the assessors were totaled, reviewed and compared. Based on the assessment results, Bill engaged in verbal or physical repetitive behavior during times when he was alone and also when he was escaping from demands. Communication is a very difficult area for Bill. Many times when he is asked a question, he will make a verbal noise or engage in a repetitive behavior first. The assessors also noticed that when Bill completed his work, he would engage in both verbal and physical repetitive behaviors. When verbally prompted to say "I am finished" or that he wanted something, he would verbally echo the prompter. Bill's common one-word requests are: "drink", "computer", "Yamaha" (meaning piano), and "pizza". If he did not know what to say, especially upon work completion, he would either run somewhere or sit and engage in repetitive behaviors. In most requests, he

engaged in incorrect verbal behaviors during verbal communication with one other person.

After completing the FBA, the next stage of the research was implementation of the FCT intervention (See Appendix). The procedure followed Mancil's model for milieu therapy using verbal mands (2009, pp. 106-107), and Ross's (2002) intervention using response cards. In my study, the cards consisted of large strips with appropriate requesting phrases typed out for Bill to read. Each phrase represented something Bill frequently attempted to request. Different selections of strips were used depending on the settings.

For step three of the process, training was implemented on appropriate use of the strips with appropriate verbal phrases. I used discrete trial training as described by Mancil and Boman (2010, p. 241) to teach correct usage of the strips. Discrete trial training is a way to teach cause and effect. If you do one thing you get reinforcement (Siegel, 2003, p.213). My procedure for training Bill to use strips began with having several reinforcing items on the table with strips for each item. The items were pizza with a strip that said 'I want Domino pizza'; for cookies the strip said 'I want Dollar Tree cookies'; for Hawaiian Punch the strip said 'I want Hawaiian Punch'; for Coke the strip said 'I want Coke'. Also added was 'I want the computer', 'I want piano', 'I want the green cube' and 'I am finished' (see Appendix). Bill was given a worksheet with "I am finished" at the bottom. When he read, "I am finished", I immediately pointed to the items. Prior to understanding that he needed to ask for the item, he tried to grab the item. We trained for two hours. Upon conclusion of training, Bill automatically verbalized his request for a desired item using the words on the strip and had time for items that he

asked for. Once he was trained to use the strips, paraprofessionals were taught to use verbal strips.

Once Bill understood how to use the strips, the next step was to see if the use of the strips reduced the repetitive behaviors. First a data sheet was designed with a division of five minute increments and the targeted behavior (see Appendix). I collected data over 30 minutes for each observation. I conducted daily observations with each paraprofessional working with Bill, for a total of 14 observations over seven days. Paraprofessional A was observed in the inclusion math class and paraprofessional B was observed in the self-contained classroom. In order to determine the impact of using the strips, I performed a reversal with strips and without strips. For three days I took data with the strips. Strips were then eliminated for two days and reinstituted for two days following the procedure used by Homer, Carr and Halle (2005, p. 169). Data for each paraprofessional was taken.

Data was taken during the reading time frame in the self-contained classroom. The reading task began with reading a story, answering verbal questions, and completing the worksheets which accompany each story. Bill has worked in the same reading series for five years and was quite comfortable completing the work. The reading series is specifically designed for students with disabilities. During math inclusion time, Bill is currently working on multiplication and division and he is not as familiar with the procedures. Data was taken when he was filling out the multiplication or division worksheets after the class explanation and examples of how complete the work.

Analysis and Discussion

The purpose of this research is to see if providing Bill with strips to make phrasal requests will replace his one-word requests and accompanying negative behaviors. Previous to the use of strips, Bill would not be able to effectively communicate what he wanted after those who worked with him asked the question of “What do you want?”. He would not answer with a complete sentence and he would not be clear with his desires. He would also use repetitive utterances or engage in repetitive behavior. With the words on the strips, Bill could communicate requests effectively with a reduction in verbal repetitive language and behavior.

On the first three days of using the strips after training procedures, Bill displayed between zero and seven incidences of repetitive behavior during his math inclusion class and during his self-contained class. When strips were removed on the next two days

Table 1

Results of Functional Communication Training to Reduce Repetitive Behavior in a Single-Child Study

Date	Condition	Instances of Repetitive Behaviors	
		Math Inclusion	Self-Contained
17-Mar	With strips	5	1
18-Mar	With strips	1	7
21-Mar	With strips	5	0
22-Mar	Without strips	9	7
23-Mar	Without strips	17	8
24-Mar	With strips	2	1
25-Mar	With strips	3	3

there was an increase in repetitive behaviors with seven to 17 instances occurring during those observations. On certain academic tasks there was also some increase in repetitive behaviors. The strips were replaced for the last two days, and the instances of repetitive behaviors declined to between one and three. Overall the numbers were lowered, which indicates some success when strips are utilized (see Table 1). The repetitive behaviors that Bill had used after finishing a classroom assignment were now absent when he used the strips.

According to the variations in the data, for Bill, functional communication training (FCT) procedures were effective in developing an appropriate replacement. Negative behaviors were greatly reduced but not eliminated. Perseverative utterances occurred during work tasks. This may have occurred due to some sensory need, which was a factor when the Motivational Assessment Scale (MAS) was taken by those who worked with him. The utterances may have also occurred because of the type of work he was completing. In order to totally eliminate interfering behaviors other factors should be investigated such as work complexity. The work in the inclusion classroom was familiar to Bill because it was the same reading series that he has worked in for five years. This may have been the reason why his repetitive behavior was slightly lower than in the math classroom. Multiplication and division are new concepts for Bill, which may account for the higher repetitive behavior. In conclusion the data shows definite benefits to the FCT procedures in order to locate an appropriate intervention. The independent variable had definite effects on the dependent variable.

Conclusion

In the Introduction, I mentioned that this research could provide teachers with a better understanding of a strategy to use for students with autism. From this research, performing a functional behavior analysis (FBA) was utilized in order to formulate an intervention. Many times teachers will develop interventions before locating the function of the behavior. The time that is taken when developing different interventions can be alleviated by first performing a FBA. Another benefit is the research that supports interventions on increasing communication through the use of visual scripts or cards. I found that visuals cut down on nervousness and the inability to find words with a student with autism, due to the communication difficulties. It also assists in verbal interaction with others. The drawback in completing a FBA or visuals is the time that most teachers do not have. It is difficult for many to see that the time put into performing a FBA or creating visuals would be beneficial in long term.

For Bill, assistance with his communication will be beneficial for him throughout his life. A system of keeping communication cards with him and teaching him to use them independently will increase his on-task behavior by giving him a means to indicate he is finished or if he needs a break. Teaching him when to use the cards would also be an effective tool towards independence in school and eventually work. It could be a tool for Bill to participate in class discussions or answer questions. Bill is a very intelligent young man and once taught, with the use of visual supports, how to perform a task, does very well.

In the methods section, the question was asked if functional communication training (FCT) would increase language and the answer is affirmative with the use of

strips. I began to notice, although the strips were in front of Bill, there were times when Bill did not need the strips in order to provide the appropriate request. The second question was whether FCT would decrease the repetitive words or behavior that often accompanied the labeling. The answer is again affirmative in most cases. There was not a total elimination, but there was a definite reduction. I also found it interesting that when the 'I am finished' strip was utilized at the end of the work, there was no verbal or physical repetitive behavior. Prior to the intervention, Bill would sit and engage in the repetitive behavior instead of verbally communicating that he was finished.

I would recommend FCT to any teacher who is attempting to eliminate problem behavior or increase verbal interaction. It not only has clinical research behind it, but it also was utilized in this single-child study in a classroom setting and was successful. Bill immediately used the strips to gain his reinforcements as soon as he completed his assignment in two different classrooms.

Future study for Bill may be a strategy to replace behavior that occurs because of sensory needs. Sensory needs are difficult to determine because they occur inwardly. A future goal for reducing his need to engage in perseverative utterances or repetitive behavior may be to teach him to engage in them at appropriate times.

Most importantly, Bill now has a method of self-advocating. According to Sicile-Kira (2008, p. 146), self-advocacy is the power to communicate your wants and needs and to make basic everyday choices. The use of scripts is a useful method of giving Bill power to make life choices without confusion or guessing. Recently, when trying to find a way of giving Bill a choice of foods the words on a strip of paper assisted in providing him with a tool to make definitive choices. Using FCT was an excellent method for

locating an important accommodation for enhancing Bill's ability to communicate. The method of using the strips will not only aid him and those who assist him in school but also assist in future endeavors.

References

- American Psychiatric Association. (1994). Diagnostic and statistical manual of mental disorders (4th ed.). Washington, D.C.: Author
- Bellini, S., & Akullian, J. (2007). A meta-analysis of video modeling and video self-modeling interventions for children and adolescents with autism spectrum disorders. *Exceptional Children*, 73(3), 264-287.
- Bopp, K., Brown, K., & Mirenda, P. (2004). Speech-Language pathologists' roles in the delivery of positive behavior support for individuals with developmental disabilities. *Forum on Intervention Strategies for Severe Disabilities*, 13, 5-19.
- Charman, T. (2003). Why is joint attention a pivotal skill in autism? *The Royal Society*, 358, 315-324.
- Cooper, J., Heron, T., & Heward, W. (2007). *Applied behavior analysis*. Columbus, OH: Pearson.
- Delaney, M. J. & Durand, V.M. (1986). Motivation assessment scale. Retrieved from http://www.nsec.k12.mn.us/Pages/Staff_resources/August_Inservice_09_pdf/fba_tools/MOTIVATION%20ASSESSMENT%20SCALE.pdf
- Farrell, M. (2006). *The effective teacher's guide to autism and communication difficulties*. New York, NY: Routledge.
- Hallahan, D. P., Kauffman, J. M., & Pullen, P. C. (2009). *Exceptional learners: An introduction to special education*. Boston, MA: Allyn & Bacon.
- Halle, J., & Meadon, H. (2007). A protocol for assessing early communication of young children with autism and other developmental disabilities. *Topics in Early Childhood Special Education*, 27(1), 49-61.
- Honey, E., McConachie, H., Randle, V., Shearer, H. & Le Couteur, A. (2008). One-year change in repetitive behaviors in young children with communication disorders including autism. *Journal of Autism and Developmental Disorders*, 38(8), 1439-1450.
- Horner, R., Carr, E., & Halle, J. (2005). The use of single subject research to identify evidence-based practice in special education. *Exceptional Children*, 71(2), 165-179.
- Mancil, G. R. (2006). Functional communication training: A review of the literature related to children with autism. *Education and Training in Developmental Disabilities*, 41(3), 213-224.

- Mancil, G. R. (2009), Milieu therapy as a communication intervention: A review of the literature related to children with autism spectrum disorder. *Education and Training in Developmental Disabilities*, 44(1), 105-117.
- Mancil, G. B. & Boman, M. (2010). Functional communication training in the classroom: A guide for success. *Preventing School Failure* , 54(4), 238-246.
- National Research Council. (2001). *Educating children with autism*. Washington, DC: National Academy Press.
- Panerai, S., Ferrante, L. & Zingale, M. (2002). Benefits of the treatment and education of autistic and communication handicapped children (TEACCH) programme as compared with a non-specific approach. *Journal of Intellectual Disability Research*, 45(4), 318-327.
- Prelock, P. & Contompasis, S. H. (2006). Autism and related disorders: Trends in diagnosis and neurobiologic considerations. In Prelock, P. (Ed.), *Autism spectrum disorders: Issues in assessment and intervention* (167-214). Austin, TX: Pro-ed,
- Ross, D. E. (2002). Replacing faulty conversational exchanges for children with autism by establishing a functionally equivalent alternative response. *Education and Training in Mental Retardation and Developmental Disabilities*, 37(4), 343-362.
- Sicile-Kira, C. (2008). *Autism life skills*. New York, NY: Penquin Group.
- Siegel, B., (2003). *Helping children with autism learn: Treatment approaches for parents and professionals*. Oxford, England: Oxford University Press.
- Shriberg, L., Paul, R., & McSweeny, J. (2001). Speech and prosody characteristics of adolescents and adults with high-functioning autism and Asperger syndrome. *Journal of Speech, Language, and Hearing Research*, 44(5), 1097-1115.
- Wert, B.Y. & Neisworth, J. T. (2003). Effects of video self-modeling on spontaneous requesting in children with autism. *Journal of Positive Behavior Interventions*, 5(1), 30-34.

Appendix

Procedural Documents

This Appendix contains originals of the documents used in obtaining informed consent from participants and for gathering data for this research project, which was conducted in the spring of 2011. These include, in order of appearance:

Informed Consent Release

Motivation Assessment Scale

Motivation Assessment Questionnaire

Training Material

Observation Data Sheet

Each item is an accurate reproduction of the document used during the collection of data for this project.

INFORMED CONSENT RELEASE

Dear Mrs.

“My name is Robin Jackson, and I am a graduate student at University of Mary Washington. I am inviting your son to participate in a research study. Involvement in the study is voluntary, so you may choose to let him participate or not. I am now going to explain the study to you. Please feel free to ask any questions that you may have about the research; I will be happy to explain anything in greater detail.

“I am interested in learning more about communication in students with autism. You will be asked to allow me to try a verbal strategy intervention called Functional Communication Training with your son. This will be incorporated in his regular routine and is meant to improve communication. All information will be kept confidential. This means that his name will not appear anywhere in the reports of my research. In any articles I write or any presentations that I make, I will use a made-up name for him, and I will not reveal details or I will change details about where he lives, any personal information about him, and so forth.

“The benefit of this research is that you will be helping us to understand communication in children with autism. This information should help us to better understand how to improve communication and learning for students with autism. If you do not wish for the study to continue, you have the right to withdraw your son from the study, without penalty, at any time.”

Participant - “All of my questions and concerns about this study have been addressed. I choose, voluntarily, to allow my son to participate in this research project.”

print name of participant

print name of parent

signature of parent

date

print name of investigator

signature of investigator

date

MOTIVATION ASSESSMENT SCALE

Name: _____ **Rater:** _____ **Date:** _____

Description of Behavior (be specific): _____

Instructors: The MAS is a questionnaire designed to identify those situations where an individual is likely to behave in specific ways. From this information, more informed decisions can be made about the selections of appropriate replacement behaviors. To complete the MAS, select one behavior of specific interest. Be specific about the behavior. For example "is aggressive" is not as good a description as "hits other people." Once you have specified the behavior to be rated, read each question carefully and circle the one number that best describes your observations of this behavior.

Questions	Never 0	Almost Never 1	Seldom 2	Half the Time 3	Usually 4	Almost Always 5	Always 6
1. Would the behavior occur continuously if this person was left alone for long periods of time?							
2. Does the behavior occur following a request to perform a difficult task?							
3. Does the behavior seem to occur in response to your talking to other persons in the room/area?							
4. Does the behavior ever occur to get a toy, food, or an activity that this person has been told he/she can't have?							
5. Would the behavior occur repeatedly, in the same way, for long periods of time if the person was alone? (e.g. rocking back and forth for over an hour.)							
6. Does the behavior occur when any request is made of this person?							
7. Does the behavior occur whenever you stop attending to this person?							
8. Does the behavior occur when you take away a favorite food, toy or activity?							
9. Does it appear to you that the person enjoys doing the behavior? (It feels, tastes, looks, smells, sounds pleasing).							
10. Does this person seem to do the behavior to upset or annoy you when you are trying to get him/her to do what you ask?							
<i>Go to next page</i>							

11. Does this person seem to do the behavior to upset or annoy you when you are not paying attention to him/her? (e.g. you are in another room or interacting with another person)							
12. Does the behavior stop occurring shortly after you give the person food, toy, or requested activity?							
13. When the behavior is occurring does this person seem calm and unaware of anything else going on around her/him?							
14. Does the behavior stop occurring shortly after (one to five minutes) you stop working with or making demands of this person?							
15. Does this person seem to do the behavior to get you to spend some time with her/him?							
16. Does the behavior seem to occur when this person has been told that he/she can't do something he/she had wanted to do?							

	Sensory	Escape	Attention	Tangible
	1.	2.	3.	4.
	5.	6.	7.	8.
	9.	10.	11.	12.
	13.	14.	15.	16.
Total Score =				
Mean Score =				
Relative Ranking =				

Motivation Assessment Scale: Functions for usage

- To direct our understanding of the behavior challenge to the intent of the challenge versus the way it appears or makes us feel.
- To understand the correlation between the frequency of the challenging behavior and its potential for multiple intents.
- To identify those situations in which an individual is likely to behave in certain ways (e.g., requests for change in routine or environment lead to biting).

Outcomes:

- To assist in the identification of the motivation(s) of a specified behavior.
- To make more informed decisions concerning the selection of appropriate reinforcers and supports for a specified behavior.

Note: Like any assessment tool, the MAS should be used in an on-going continually developing mode.

Motivation Assessment Questionnaire

Name of Observer_____ Date_____

Observer Time frame with Student:_____

Setting of Observation:_____

Behavior: Various unintelligible noises, verbal scripting of television characters, hand in front of face looking at it

Questionnaire

1. What occurs when you make a request to perform a task?

2. Has the student ever refused something he has asked for after requesting it? If so, did this action occur directly after the student received requested item?

3. Does the student exhibit any vocal or physical behaviors when the class is completely quiet, please explain what is observed?

4. Does the student exhibit any vocal or physical behaviors when the inclusion teacher is talking to the class as a whole, please explain what is observed?

5. Does the student exhibit any vocal or physical behaviors when working with paraprofessional or with a peer near him in the self-contained classroom?

6. Does the student exhibit any vocal noises or physical behaviors when answering questions, if so give examples of questions asked to the student.

7. Describe student's behavior after he has independently completed a written assignment.

Training Material

I want the green cube.

I want Hawaiian
Punch.

I want piano.

I want Domino pizza.

I want Dollar Tree
cookies.

I want the computer.

I am finished.

Observation Data Sheet

Name _____

	5	10	15	20	25	30
scripting						
noise						
Hand in front of face						

	5	10	15	20	25	30
scripting						
noise						
Hand in front of face						

	5	10	15	20	25	30
scripting						
noise						
Hand in front of face						

	5	10	15	20	25	30
scripting						
noise						
Hand in front of face						

	5	10	15	20	25	30
scripting						
noise						
Hand in front of face						